

## NOTES

WING REDUCTION IN ISLAND *COREOPSIS GIGANTEA* ACHENES.—Paula M. Schiffman, Department of Biology and Center for the Study of Biodiversity, California State University, Northridge, CA 91330-8303.

Sherwin Carlquist (Quarterly Review of Biology 41:247–270, 1966; Evolution 20: 30–48, 1966; Brittonia 18:310–335, 1966) noted that island organisms often have reduced dispersibilities associated with reductions in wings or other dispersal structures. Among island plants, “precinctiveness” is common and an inability to disperse long distances is adaptive (Carlquist op. cit.). This is because the geographic extents of habitats of island species are often small and dispersal-enhancing morphologies increase probabilities of being transported beyond the bounds of these narrow habitats. In the most extreme cases, diaspores might be dispersed off an island and lost at sea (Eliasson, in Vitousek, Loope, and Adersen [eds.], Islands: biological diversity and ecosystem function, Springer-Verlag, NY, 1995; Cody and Overton, Journal of Ecology 84:53–61, 1996). Recently, Cody and Overton (op. cit.) documented rapid and significant reductions in pappus volume in *Lactuca muralis* and *Hypochaeris radicata* on some British Columbia islands. The strong selection for loss of dispersibility that they found suggested that similar selective forces should also be strong on other islands, resulting in widespread reductions in dispersibility among island species.

Such reductions should be apparent if the morphologies of diaspores of island plant species are compared to the morphologies of diaspores of their close mainland relatives. The following are the results of a small comparative study of achene morphologies of island and mainland populations of the perennial composite, *Coreopsis gigantea* (Kellogg) H. M. Hall. The specific question addressed was: when compared to achenes of a mainland population, do achenes of an island population exhibit morphologies consistent with a loss of dispersibility?

Achenes were haphazardly collected from a *C. gigantea* population on Bird Rock (a small islet located in the channel 0.4 km off-shore from the isthmus at Santa Catalina Island) and from a mainland population near Zuma Beach (Los Angeles Co.). Wing widths, seed widths, and achene lengths were measured to the nearest 0.01 mm using digital calipers (Fowler Ultra-Cal II;  $n = 100$  achenes for each population). These island and mainland data were evaluated statistically using 2-sample  $t$ -tests ( $\alpha = 0.05$ ; SYSTAT 5.2).

Small but highly statistically significant differences between the island and mainland populations were found for each of the achene characteristics examined (Fig. 1). The most striking difference was in wing width. Wings of achenes collected from the island (Bird Rock) population were, on average, 31.2% narrower than the wings of achenes from the mainland (Zuma Beach) population. In addition, seeds of Bird Rock achenes were 13.8% narrower and 18.8% longer than those from the mainland. It appears that the Bird Rock population may have experienced selection for reduced dispersibility similar to that observed by Cody and Overton (op. cit.). Moreover, this limited comparison suggests that *C. gigantea* achenes produced on California's Channel Islands have dramatically different morphologies than those produced by plants on the mainland.

These findings seem to support the Carlquist's hypothesis regarding precinctiveness in island plants and clearly merit further investigation. The 2 sites sampled for this study constituted only a very small subset of all island and mainland sites that support *C. gigantea*, a species that occurs along a narrow coastal strip from San Luis Obispo Co. through Los Angeles Co. (Sharsmith, Madroño 4:209–231, 1938; Smith, Sida

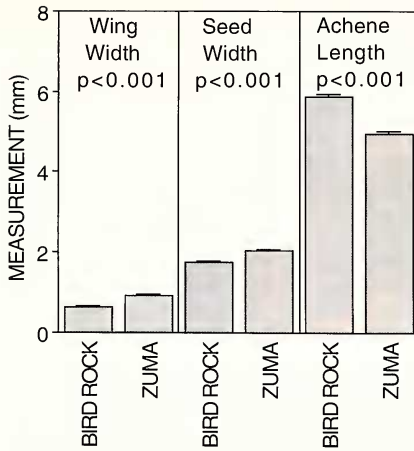


FIG. 1. Comparisons of mean ( $\pm$ SE) *Coreopsis gigantea* wing widths, seed widths and achene lengths for island (Bird Rock) and mainland (Zuma Beach) populations.

10:276–289, 1984) and on all of the Channel Islands (Junak et al., A flora of Santa Cruz Island, Santa Barbara Botanic Garden, 1995). In order to more fully understand these apparent differences in island and mainland achene morphologies and their relevance to dispersal and fitness, a more comprehensive and detailed examination of *C. gigantea* achenes (collected from several Channel Island and mainland locations) is currently underway.

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THE IDENTITY OF THE NAME *LUDWIGIA SCABRIUSCULA* KELLOGG.—Shirley Graham, Department of Biological Sciences, Kent State University, Kent, OH 44242 and David Keil, Biological Sciences Department, California Polytechnic State University, San Luis Obispo, CA 93407.

The identity of the name *Ludwigia scabriuscula* Kellogg (Proc. Calif. Acad. Sci. 7:78. 1876) has apparently been somewhat a mystery since shortly after the species was described. No type material is known in BM, CAS, GH, UC, or US where Kellogg collections might be found and the description, although detailed, is problematic. It does not apply unambiguously to *Ludwigia* (Onagraceae) or any similar genus. Within four years of publication, the species was synonymized under *Ammannia latifolia* L. (Lythraceae) by Sereno Watson, who qualified his decision with the word “apparently” (Bot. Calif. 2:447. 1880). Mary Curran (Bull. Cal. Acad. Sci. 1:128–151. 1884) in reviewing the Kellogg species, accepted the synonymy without comment. It is possible that she did not see authentic material because the existence of some Kellogg types was already questionable at that time. Emil Koehne, monographer of *Ammannia*, saw no specimens of *Ludwigia scabriuscula*. He accepted Watson’s synonymy in “Lythraceae of the United States” (Bot. Gaz. 10:269. 1885) and later in his monograph of the Lythraceae (*Das Pflanzenreich* IV. 216:50. 1903).

Graham (J. Arnold Arbor. 66: 418. 1985) excluded *L. scabriuscula* from the synonymy of *A. latifolia* on morphological and geographical grounds. No *Ammannia* are known to have an inferior ovary (inferred by the generic assignment), scabrous